# Jeopardy Assessment

for the Proposed Incidental Taking Authorization
of the arrowhead sweet-coltsfoot (*Petasites sagitattus*)

Wisconsin Department of Transportation's Reconstruction of STH 13,
Town of Port Wing, Bayfield County, Wisconsin

## Background

The state-threatened arrowhead sweet-coltsfoot (*Petasites sagittatus*) is a perennial plant that forms vegetative clones by means of rhizomes. It is capable o sexual reproduction by means of functionally doecious flowers. Flowers typically bloom in May and produce wind-borne seeds in early summer. *P. sagittatus* typically has very little success at sexual reproduction due to infrequent flower production. Therefore, its principal means of reproduction is by developing vegetative clones, producing colonies consisting of only a few genetically distinct individuals.

*Petasites sagittatus* is an emergent obligate wetland plant. This species typically occurs in fresh wet meadows, alder thickets, boggy and swampy woodlands, and roadside and drainage ditches. In northwestern Wisconsin, typical habitats are cold, boggy meadows dominated by grasses or sedges such as *Calamagrostis canadensis* and *Carex lacustris*. *P. sagittatus* is also typically associated with *Carex lasiocarpa*, *C. lanuginosa*, *Salix* spp., *Betula pumila*, *Alnus incana*, *Solidago uliginosa*, *Caltha palustris*, *Iris versicolor*, *Phragmites australis* and *Phalaris arundinacea*.

*Petasites sagittatus* has been found to grow the most vigorously in black muck soils in association with very cold spring water. In this type of habitat the plants can have leaves and flowering stalks up to a meter in height. This indicates the importance of cold ground water and cold airflow provided by shade trees from upslope drainages cannot be overemphasized. These characteristics emulate the boreal conditions where *P. sagittatus* normally thrives. The hydrologic range of this species is not well known, although this particular population as observed growing in standing water 3-5 cm deep in August 2001. This species generally prefers slightly acidic conditions in the pH range of 4-5.9.

In the Great Lakes region, *P. sagittatus* occurs at or near the southern limit of its range, leading to its rarity within the Upper Peninsula of Michigan, northwestern Wisconsin, and northern Minnesota. In northwest Wisconsin, *P. sagittatus* is found in marshes and shrub-carr wetlands primarily in Douglas and Bayfield counties. This species is listed as threatened in Wisconsin due to its state rarity.

In Wisconsin, *P. sagittatus* is known from 29 extant sites (with 3 additional historic sites). The majority of known populations are in Douglas and Bayfield counties, including several that are in or near the City of Superior. Of the 29 populations, only 7 are considered "good or fair" in quality. The majority of populations are either "fair or poor estimated viability". While the Port Wing STH 13 ditch population has many stems and moderate areal coverage, it is ranked as only a "fair" population due to its vulnerable location and potential for extirpation from roadside maintenance.

## Jeopardy Assessment

The proposed road reconstruction of STH 13 in the Town of Port Wing will result in the loss of the majority of the clone of *Petasites sagitattus* at the site. This is because the clone exists entirely within the ditch of the existing roadway, which is being widened to provide an addition safety zone for the highway. The population within the ditch is not robust due to poor soil, poor hydrology, and the presence of road salts. The majority of this clone is proposed to be translocated to better habitat in adjacent areas of suitable wetland habitat. Some stems on the edge of the clone are growing along with reed canary grass and will not be translocated due to the presence of this invasive species.

The department has determined that the proposed project is not likely to jeopardize the continued existence or recovery of the state population of this species, or the whole plant-animal community of which they are a part, because of the potential for this clone to thrive when placed in better soil and hydrologic conditions more optimum for the species.

**Conservation Measures**

The following conservation measures will be followed to mitigate adverse effects on the state threatened arrowhead sweet-coltsfoot, *Petasites sagittatus*.

- The translocation site (or multiple sites) will provide suitable conditions for this species, with particular attention to water source and quality, slope, and pH conditions of the soil. Areas containing invasive species (i.e. reed canary) or *Petasites palmatus* should be avoided at these sites. *P. palmatus* can hybridize with *P. sagittatus* and create *P. vitifolias*, thus changing the genetic composition of *P. sagittatus.*

  Other considerations for translocation sites were: close proximity to the site, property that is state owned to afford protection for the population, sites that are accessible by vehicles or ATV to provide access and less handling and travel time for the translocating plants, and plant communities typically associate with this species.

- Five sites have been selected that meet the criteria, as described in the Summary Relocation Plan for the project dated September 19, 2003, although not all sites may be used for the translocation. Sites that most approximate optimum conditions for this species will be used upon DNR approval. The pH is highly variable at the sites, so locations within the sites will be chosen based on best possible pH.

- Plants will be dug to the depth of their roots and be relocated along with the soil they occur in. The rooting depth of *P. sagittatus* is limited to the depth of the organic layer (5-7inches). The plants will be removed as intact portions of the clone.

- Fifty percent of the clone should be relocated to the site with the greatest potential for long-term persistence of the clone. The remaining 50 percent of the clone will be distributed between other sites also selected per DNR approval.

- The translocation will occur after the plants have senesced for the season, but before the ground is frozen. This will minimize trauma to the plants and ensure workable ground conditions in the wetlands.

- The translocated populations will be monitored at 1, 2, 5, and possibly 10 year intervals per DNR approval. The purpose is to evaluate impacts from translocation, as well as whether the plants actually establish and thrive in the new location. The presence of invasive species and *P. palmatus* will also be included in the monitoring analysis.